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Cigarette Smoke Effects on Certain Aspects of Rat Lung Metabolism.

These studies are intended to accomplish the following specific research aims:

(1) to determine the effects of long-term cigarette smoking on rat lung enzymes related to the pentose shunt and to glutathione metabolism; on rat lung lysosomal enzymes; on rat lung alveolar macrophages; and on rat antibacterial defense mechanisms.

(2) to determine the effects of long-term cigarette smoking minus particulates on the above mentioned lung biochemical and antimicrobial parameters.

(3) to determine the interacting effects of long-term cigarette smoking and oxidant pollutant (ozone) exposure on the above mentioned lung biochemical and antimicrobial parameters.

Observations of potential NADPH-related antioxidant defense system augmentation in response to cigarette smoke exposure will also be followed up (particularly with regard to the interacting effects of oxidant pollutants) and the participation of the superoxide dismutase antioxidant defense systems in this overall reaction scheme will be studied. It is also intended during the second year to gather preliminary information concerning the effects of cigarette smoke on lung fibrogenesis, on lung nucleotide synthesis rates, and on lung prostaglandin synthesis and degradation.

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Current Grant Level: $43,400.